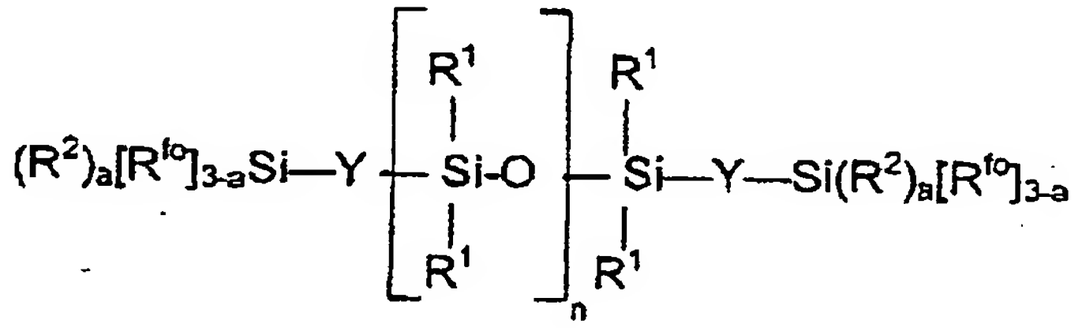
WHAT IS CLAIMED IS:

1. A single-component polyorganosiloxane composition (POS) which is stable on storage in the absence of moisture and which crosslinks in the presence of water to give a nonyellowing and adherent elastomer, said composition comprising:

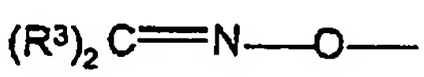
(i) at least one crosslinkable linear polyorganopolysiloxane **A** of formula:



(I)

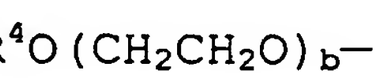
in which:

- the substituents R^1, which are identical or different, each represent a saturated or unsaturated, substituted or unsubstituted, aliphatic, cyclanic or aromatic, C_1 to C_{13} monovalent hydrocarbon radical;
- the substituents R^2, which are identical or different, each represent a saturated or unsaturated, substituted or unsubstituted, aliphatic, cyclanic or aromatic, C_1 to C_{13} monovalent hydrocarbon radical;
- the functionalization substituents R^{fo}, which are identical or different, each represent:
  - an iminoxy residue of formula:



with R^3 independently representing a linear or branched C_1 to C_8 alkyl, a C_3 to C_8 cycloalkyl or a C_2-C_8 alkenyl;

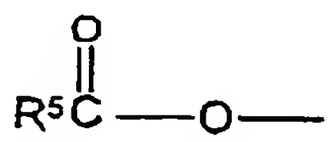
  - an alkoxy residue of formula:



with R^4 independently representing a linear or

branched C_1 to C_8 alkyl or a C_3 to C_8 cycloalkyl and b = 0 or 1;

- an acyloxy residue of formula:



with R^5 representing a saturated or unsaturated, substituted or unsubstituted, aliphatic, cyclanic or aromatic, C_1 to C_{13} monovalent hydrocarbon radical;

- an enoxy residue of formula:

$$(H)_{b'}(R^5)_{2-b'}C=C(-O-)R^5$$

where R^5 is as defined above and b′ = 0, 1 or 2;

- each symbol Y represents an oxygen atom or a divalent hydrocarbon group;
- n has a value sufficient to confer, on the POS **A**, a dynamic viscosity at 25°C ranging from 1000 to 1 000 000 mPa·s;
- a is zero or 1;

(2i) optionally at least one polyorganosiloxane resin **B** functionalized by at least one radical R^{fo} corresponding to the definition given above and exhibiting, in its structure, at least two different siloxyl units chosen from those of formulae $(R^1)_3SiO_{1/2}$ (M unit), $(R^1)_2SiO_{2/2}$ (D unit), $R^1SiO_{3/2}$ (T unit) and SiO_2 (Q unit), at least one of these units being a T or Q unit, the radicals R^1, which are identical or different, having the meanings given above with respect to the formula (I), said resin having a content by weight of functional radicals R^{fo} ranging from 0.1 to 10%, it being understood that a portion of the radicals R^1 are radicals R^{fo};

(3i) optionally at least one crosslinking agent **C** of formula:

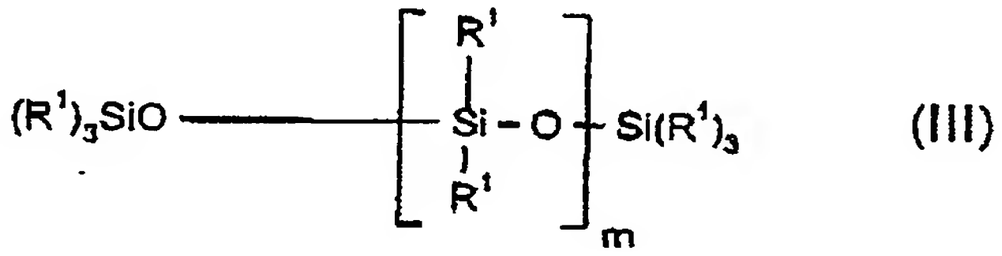
$$(R^2)_aSi[R^{fo}]_{4-a} \qquad (II)$$

with R^2, R^{fo} and a being as defined above;

(4i) optionally a residual amount of the functionalization catalyst **D** in the presence of which the preparation of the POS(s) **A** and of the optional resin(s) **B** which are functionalized by R^{fo} takes place;

(5i) optionally at least one primary aliphatic C_1 to C_3 alcohol **E**;

(6i) optionally at least one unreactive linear polydiorganosiloxane **F** which is not functionalized by R^{fo} and which has the formula:



(III)

in which:

- the substituents R^1, which are identical or different, have the same meanings as those given above for the polyorganosiloxane **A** of formula (I);
- m has a value sufficient to confer, on the polymer of formula (III), a dynamic viscosity at 25°C ranging from 10 to 200 000 mPa·s;

(7i) at least one inorganic filler **G**;

(8i) optionally at least one auxiliary agent **H** known to a person skilled in the art which is generally chosen, when it is needed, according to the applications in which the compositions according to the present invention are employed;

(9i) an effective amount of a crosslinking/curing catalyst **I**; said composition being characterized by the following points (α), (β) and (γ):

- (α) the curing catalyst **I** consists of the combination of at least one organic derivative **I1** of a metal M1 chosen from titanium, zirconium and their mixtures with at least one organic derivative **I2** of a metal M2 chosen from zinc, aluminum, boron, bismuth and their mixtures;
- (β) the number of μg.at (microgram atoms)

of the metals M1 + M2 introduced into 1 g of single-component composition comprising all the ingredients (i) to (8i) lies within the range extending from 1 to 150;

- (γ) the ratio:

$$\frac{\text{number of } \mu\text{g.at of M2}}{\text{total number of } \mu\text{g.at of M1 + M2}} \times 100$$

lies within the range extending from 5 to 95%.

2. The single-component polyorganosiloxane (POS) composition as claimed in claim 1, characterized in that use is made of an amount of curing catalyst **I** such that:

- (β) the number of µg.at (microgram atoms) of the metals M1 + M2 introduced into 1 g of single-component composition comprising all the ingredients (i) to (8i) lies within the range extending from 25 to 55;
- (γ) the ratio:

$$\frac{\text{number of } \mu\text{g.at of M2}}{\text{total number of } \mu\text{g.at of M1 + M2}} \times 100$$

lies within the range extending from 10 to 45%.

3. The single-component polyorganosiloxane (POS) composition as claimed in claim 1, characterized in that:

- the POS **A** is a polymer of formula (I) in which the symbol Y represents an oxygen atom;
- the functionalization substituents R^{fo} of the ingredients **A**, **B** and **C** are of alkoxy type and correspond to the formula $R^4O(CH_2CH_2O)_b-$ as defined above; and
- the crosslinking/curing catalyst **I** consists of a combination:
  - of at least one organic derivative **I1** of a

metal M1 chosen from the group consisting of:

+ monomers **I1.1** of formula:

$$[L]_cM1[(OCH_2CH_2)_dOR^7]_{4-c} \quad (V)$$

in which:

- the symbol L represents a σ donor ligand, with or without π participation;
- c represents 0, 1, 2, 3 or 4;
- M1 is a metal chosen from titanium, zirconium and their mixtures;
- the substituents R^7, which are identical or different, each represent a linear or branched C_1 to C_{12} alkyl radical;
- d represents zero, 1 or 2;
- with the conditions according to which, when the symbol d represents zero, the alkyl radical R^7 has from 2 to 12 carbon atoms and, when the symbol d represents 1 or 2, the alkyl radical R^7 has from 1 to 4 carbon atoms;

+ polymers **I1.2** resulting from the partial hydrolysis of the monomers of formula (V) in which the symbol c is at most equal to 3 and the symbol R^7 has the abovementioned meaning with the symbol d representing zero; with

• at least one organic derivative **I2** of a metal M2 chosen from the group consisting of:

+ the polycarboxylates **I2.1** of formula:

$$M2(R^8COO)_v \quad (VI)$$

+ the metal alkoxides and chelates **I2.2** of formula:

$$(L)_eM2(OR^9)_{v-e} \quad (VII)$$

+ in which formulae:
  - the substituents R^8, which are

identical or different, each represent a linear or branched C_1 to C_{20} alkyl radical;

- the symbol R^9 has the meaning given above in the formula (V) for R^7;
- the symbol L represents a σ donor ligand, with or without π participation;
- M2 is a metal of valency v chosen from zinc, aluminum, bismuth, boron and their mixtures;
- e represents a number ranging from zero to v.

4. The single-component polyorganosiloxane (POS) composition as claimed in any one of claims 1 to 3, characterized in that the substituents R^1 of the polymers POS **A** functionalized by R^{fo}, of the optional resins **B** functionalized by R^{fo} and of the optional nonfunctionalized polymers **F** are selected from the group formed by:

- alkyl and haloalkyl radicals having from 1 to 13 carbon atoms,
- cycloalkyl and halocycloalkyl radicals having from 5 to 13 carbon atoms,
- alkenyl radicals having from 2 to 8 carbon atoms,
- mononuclear aryl and haloaryl radicals having from 6 to 13 carbon atoms,
- cyanoalkyl radicals, the alkyl members of which have from 2 to 3 carbon atoms.

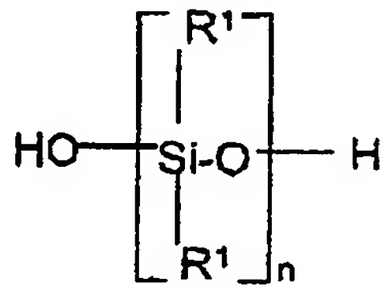
5. The single-component polyorganosiloxane (POS) composition as claimed in any one of claims 1 to 4, characterized in that the crosslinking silanes **C** carrying the functionalization radicals R^{fo} are: $Si(OC_2H_5)_4$, $CH_3Si(OCH_3)_3$, $CH_3Si(OC_2H_5)_3$, $(C_2H_5O)_3Si(OCH_3)$, $(CH_2=CH)Si(OCH_3)_3$ or $(CH_2=CH)Si(OC_2H_5)_3$.

6. A process for the preparation of the single-

component polyorganosiloxane (POS) composition as claimed in any one of claims 1 to 5, characterized in that the preparation is carried out in equipment, operating batchwise or continuously, which makes it possible:

- to intimately mix, with the exclusion of moisture:
  + in a stage 1, the following constituents: precursor POS **A'** or **A"** of the POS **A** functionalized by R^{fo}, precursor resin **B'** or **B"** (optional) of the resin POS **B** functionalized by R^{fo}, silane, optionally olefinic, carrying the functional groups R^{fo} (which can be the silane **C**), functionalization catalyst **D**, alcohol **E** (optional) and nonfunctionalized and unreactive POS **F** (optional);
  + then, in a stage 2, the reaction mixture from stage 1 supplemented by the addition of the constituents **G**, **H** (optional), **F** (optional) and **I**; and
- to discharge the volatile materials present at various points in the implementation of the process:
  + during the abovementioned stage 1 and/or
  + during the abovementioned stage 2 and/or
  + in a final stage 3.

7. The process as claimed in claims 3 and 6, characterized in that the hydroxylated precursor **A'** of the POS **A** functionalized by R^{fo} at the chain ends is an α,ω-hydroxylated polydiorganosiloxane of formula:

(A')  (IV)

with R^1 and n being as defined above in the formula (I).

8. The process as claimed in claims 3 and 6 or 7, characterized in that the hydroxylated precursor **B'** of the optional resin POS **B** functionalized by R^{fo} corresponds to the definition given above for **B** in claim 1, except that a portion of the radicals R^1 correspond to OH groups.

9. The process as claimed in any one of claims 3 and 6 to 8, characterized in that the functionalization catalyst **D** is selected from the following compounds:
- potassium acetate,
- various inorganic oxides,
- carbamates,
- lithium hydroxide,
- sodium hydroxide or potassium hydroxide.

10. A nonyellowing elastomer capable of adhering to various substrates and obtained by crosslinking and curing the single-component silicone mastic composition as claimed in any one of claims 1 to 5 or which is obtained by the process as claimed in any one of claims 6 to 9.